

What is claimed is:

1. A portable communication terminal which is capable of communicating with an information terminal between different kinds of networks, comprising:

5 a plurality of radio communication sections which carry out data communications, respectively in respective service areas of said different kinds of networks;

a data communication control section which controls said data communications of said a plurality of radio communication sections by their own first control commands
10 of respective radio communication sections; and

a command conversion section which carries out conversion of said first control commands used by said data communication control section and a second control command used for a communication with said information terminal.

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2. A portable communication terminal which is capable of communicating with an information terminal in an wireless WAN and an wireless LAN, comprising:

5 a wireless WAN communication section which has a function of access to said wireless WAN;

a wireless LAN communication section which has a function of access to said wireless LAN;

a wireless LAN data communication control section which controls data communication of said wireless LAN
10 communication section by a control command of said wireless LAN and which simultaneously communicating with said

information terminal at the control command of said wireless LAN;

15 a wireless WAN data communication control section which controls data communication of said wireless WAN communication section by a control command of said wireless WAN; and

20 a wireless WAN command conversion section which carries out conversion of said control command of said wireless WAN and said control command of said wireless LAN between said wireless WAN data communication control section and said information terminal.

3. A portable communication terminal which is capable of communicating with an information terminal in an wireless WAN and an wireless LAN as claimed in claim 2, wherein communication is carried out between said portable 5 communication terminal and said information terminal by a control protocol for said wireless LAN communication section.

4. A portable communication terminal which is capable of communicating with an information terminal in an wireless WAN and an wireless LAN as claimed in claim 2, wherein said wireless WAN command conversion section converts said 5 control command of said wireless WAN into said control command of said wireless LAN during an wireless WAN data reception while said wireless WAN command conversion section converts said control command of said wireless LAN into said control command of said wireless WAN during an 10 wireless WAN data transmission.

5. A portable communication terminal which is capable of communicating with an information terminal in an wireless WAN and an wireless LAN as claimed in claim 2, wherein said wireless WAN command conversion section converts an NDIS
5 command as a control command for said wireless LAN communication section into an AT command as a control command for said wireless WAN communication section.

6. A portable communication terminal which is capable of communicating with an information terminal in an wireless WAN and an wireless LAN as claimed in claim 2, wherein said wireless WAN command conversion section converts a first
5 control information including a report for an radio wave condition during data reception and charging information into a second control information capable of being used in said wireless LAN communication section and then transfers the second control information to said information terminal.

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7. A portable communication terminal which is capable of communicating with an information terminal in an wireless WAN and an wireless LAN as claimed in claim 2, wherein said wireless LAN data communication control section, said
5 wireless WAN command conversion section have functions to constitute or dissolve transmission and reception data from said portable communication terminal to said information terminal or from said information terminal to said portable communication terminal into a packet array defined by LAN,
10 respectively.

8. A portable communication terminal which is capable of communicating with an information terminal in an wireless WAN and an wireless LAN as claimed in claim 7, wherein said wireless LAN data communication control section, said
5 wireless WAN command conversion section have functions to divide or combine each packet of said transmission and reception data into a designated packet size, respectively.

9. A portable communication terminal which is capable of communicating with an information terminal in an wireless WAN and an wireless LAN as claimed in claim 2, further comprising a portable communication apparatus external
5 interface block with respect to said information terminal, wherein data interfaces carrying out transmission and reception of said data, a transfer of said control command, independently, are formed between said portable communication apparatus external interface block and said
10 wireless WAN command conversion section, said wireless LAN data communication control section, respectively.

10. A portable communication terminal which is capable of communicating with an information terminal in an wireless WAN and an wireless LAN as claimed in claim 9, wherein a data interface for transferring the control command, a data
5 interface for transferring the transmission and reception data, and a data interface for transferring information that data communication in said wireless LAN and in said wireless WAN become effective are formed in parallel by separate paths

between said portable communication apparatus external
10 interface block and said information terminal.

11. A portable communication terminal which is capable of communicating with an information terminal in an wireless WAN and an wireless LAN as claimed in claim 10, wherein said data interface for transferring the control command, said
5 data interface for transferring the transmission and reception data, and said data interface for transferring information that data communication in said wireless LAN and in said wireless WAN become effective each between said portable communication apparatus external interface block and said
10 information terminal are formed by USB interfaces, respectively.

12. A portable communication terminal which is capable of communicating with an information terminal in an wireless WAN and an wireless LAN as claimed in claim 2, wherein said wireless WAN command conversion section, at the time of
5 access to said wireless WAN, informs said wireless LAN communication section that the wireless WAN is effective at the present and makes said wireless LAN communication section stop the communication, and wherein said wireless LAN data communication control section, at the time of access
10 to said wireless LAN, informs said wireless WAN communication section that the wireless LAN is effective at the present and makes said wireless WAN communication section stop the communication.

13. A portable communication terminal which is capable of communicating with an information terminal in an wireless WAN and an wireless LAN as claimed in claim 12, wherein an wireless LAN effective line is formed between said wireless
5 WAN command conversion section and said wireless LAN data communication control section while an wireless WAN effective line is formed between said wireless WAN data communication control section and said wireless LAN data communication control section, said wireless LAN effective
10 line becoming active for informing that the wireless LAN is effective at the present from said wireless LAN data communication control section to said wireless WAN command conversion section, and said wireless WAN effective line becoming active for informing that the wireless WAN is
15 effective at the present from said wireless WAN data communication control section to said wireless LAN data communication control section.

14. A portable communication terminal which is capable of communicating with an information terminal in an wireless WAN and an wireless LAN as claimed in claim 12, wherein information that data communication in the wireless WAN is
5 effective at the present is sent to said information terminal and displayed in the information terminal at the time of access to said wireless WAN, and wherein information that data communication in the wireless LAN is effective at the present is sent to said information terminal and displayed in
10 the information terminal at the time of access to said wireless

LAN.

15. A portable communication terminal which is capable of communicating with an information terminal in an wireless WAN and an wireless LAN as claimed in claim 2, wherein said wireless LAN data communication control section requests
5 said information terminal an admittance procedure of the wireless LAN and said information terminal is informed that said data communication in the wireless LAN is effective after completion of said admittance procedure of the wireless LAN, when switching from said wireless WAN into said wireless
10 LAN is carried out, and wherein said wireless WAN command conversion section requests said information terminal an admittance procedure of the wireless WAN and said information terminal is informed that said data communication in the wireless WAN is effective after
15 completion of said admittance procedure of the wireless WAN, when switching from said wireless LAN into said wireless WAN is carried out.

16. A method of converting a control protocol of a portable communication terminal which is capable of communicating with an information terminal between different kinds of networks, said method comprising the steps of:

5 carrying out data communications separately in respective service areas of said different kinds of networks;

controlling said data communications by control commands used in respective networks; and

carrying out conversion of said control commands used

10 in respective networks and a control command used in said information terminal.